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ALARA Post-Job Review
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RWP Number: BW-01-21-00612 ALARA Plan Number: BW-01-21-00612 W. O. Number: Various

Task Description: Core Barrel Moves- Remove / Replace tasks 1 & 2 / Lower Internals Inspection task 3

Estimated Exposure: Tasks 1 & 2 0 .220 Person-Rem Estimated Time: Tasks 1 & 2 235 Person Hours
Task 3 0.180 Task 3 345

Exposure Challenge Goal: Tasks 1 & 2 0.198 Person-Rem
Task 3 0.162

Issue Report #: N/A

Actual

Actual

Task 1 & 2,

Person-Rem: 0.345 Person-Hr: 375 Effective Dose Rate 0.92 mrem/hr

Task 3,

Person-Rem: 0.364 Person-Hr: 390 Effective Dose Rate 0.933 mrem/hr

Exposure Analysis

The work scope included remove / replace the core barrel and Lower Internals Inspection, The dose received for the core barrel moves was 0.239 P-Rem for the removal and 0.106 P-Rem for the installation of the Core Barrel, for a total of 0.345 P-Rem.

Core Barrel

For removal of the Core Barrel, the Crane Operators received 0.117 P-Rem (0.093 P-Rem for the Operator and 0.024 P-Rem for the backup). The remaining dose of 0.122 P-Rem for the removal of the Core Barrel, was for Rope Tenders, RP controls, a Dry Run, installation of guide pin covers, and Westinghouse. Shielding package was installed on the Polar Crane handrails (single layer) and on the floor of the cab (double layer). Additional shielding (4 blankets) was installed on the handrail in front of the crane operator.

For Install of the Core Barrel, the Crane Operators received 0.059 P-Rem (0.041 P-Rem for the Operator and 0.018 P-Rem for the backup). The remaining dose of 0.101 P-Rem for the removal of the Core Barrel, was for Rope Tenders, RP controls, a Dry Run, installation of guide pin covers, and Westinghouse.

Squid Exams

The 50% WIP for the task 3 ALARA Plan was completed on 4/10/21 and increased the estimate to 0.629 Person Rem. The work was completed for 0.390 Person Rem
The original expectation was that work on this task would be predominantly behind the shield wall. This was not possible due to the placement of other components in the area and the length of the umbilical for the squid. This work area has higher general area dose rates than originally anticipated.

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Job Strengths

Core Barrel

- Shielding installed on polar crane.
- After the removal of the core barrel a lessons learned meeting was held to identify any opportunities for improvement. Additional shielding was installed on the polar crane.

Squid Exams

- Shielding installed on the Rx head next to the Squid laydown area reducing working area dose rates from 7 mRem/hr to 3.5 mRem/hr.
- LDWA has been established for the workers.
- Work group was briefed by Alara to communicate working area dose rates and on using the LDWA.
- Crew size was minimized.

Job Weaknesses

The OCC elected to create a contingent repair team to fix any crane issues if it stopped working during the lifts. The ALARA plan does not address emergency repairs. The E.D set points and ALARA controls for the workers were developed by RP in a quick manner. Future ALARA plans for Core Barrel work need to address this contingency and use the radiological data from this outage to create the appropriate task and controls for emergent repairs.

General Comments/ Lessons Learned/ Recommendations

The SQUID inspection machine had to be set up next to the cavity and near the head. It was originally anticipated that they would set up the machine around the shield wall but that was not possible this outage due to other components in that area. More dose was added to that task to account for the higher dose rates.

EMD's showed up at the Alara Brief with no advance notice to be briefed in case an emergency entry had to be made to trouble shoot any crane problems. EMD's ED dose setting we're set at 6000 mRem/hr and 800 mRem accumulated.

An ED was installed on the polar crane location that EMD's would have to take for crane trouble shooting activities. Highest dose rate seen was 3600mrem/hr based on this data EMD's ED settings were revised to rate alarm of 4000 mRen/hr and 1000 mRem accumulated.

After the core barrel removal, a lesson learned meeting was held with the crane operators and RP. to identify any opportunities for improvement. Additional shielding was installed on the polar crane in front of the operator, 4 more lead blankets were hung on the front of the crane where the operator was sitting.

Core Barrel checklist was created so it can be referenced for future core barrel moves.

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Issue Reports/ PCEs

None

Approvals: (signature)

Originator: PAUL GERHARDT Print/Sign Date: 4/13/21

Work Group Rep.: David Mahn Print/Sign Date: 4/13/21

RP Supervisor: Joseph Schuenter Print/Sign Date: 4/13/21

RP Programs Manager: Megan Holba Print/Sign Date: 4-13-21